

February 2, 2000
Ref. No.: EOS/ETS-0202-C01

National Aeronautics and
Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

Attention: Mr. Willie Fuller
Code 581
Building 32, Room N212D

Subject: Contract No.: NAS9-98100
CSOC ETS Completion Form Task
EOSDIS Test System (ETS) Simulated CCSDS Telemetry Generator
(SCTGEN) -- Delivery of the Patch Release 2.2 Software

Dear Mr. Fuller:

The CSOC contractor is pleased to deliver Patch Release 2.2 of the Simulated CCSDS Telemetry Generator (SCTGEN) of the ETS. Release 2.2 of SCTGEN provides solutions to six Discrepancy Reports (DRs). In addition, workarounds have been provided for two other DRs, ETS0331 and ETS0333.

The delivery package contains 5 attachments as listed below, describing the delivery contents, build instructions, resolved DRs, and release history. A completed Mission Systems Configuration Management (MSCM) form is included.

If you have any questions concerning this delivery, please call me at (301) 805-3010.

Sincerely yours,

James Kelly
SCTGEN Programming Lead

Delivery Package Reviewed by:

Joe Polesel
Simulation Group Sustaining Engineer Manager

EOSDIS Test System (ETS) Simulated CCSDS Telemetry Generator
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The following attachments contain the details of the SCTGEN software.

- Attachment A - contains the instructions to build and install the software
- Attachment B - contains a list of the resolved DRs
- Attachment C - contains the release history summary matrix
- Attachment D - contains a file name listing of the delivery contents
- Attachment E - contains the Mission Systems Configuration Management (MSCM) form

Distribution: (* - Letter Only)

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ESDIS Library	Thompson, S.	Tieren, C.	Walters, A.
			Task File
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			Kelly, J.

Attachment A — Release 2.2 Build Instructions

SCTGEN consists of two elements: (1) the SCTGEN Graphical User Interface, referred to as SCTGUI; and (2) the SCTGEN application software, referred to as SCTGEN. Instructions for building the complete system, SCTGEN Release 2.2, step by step, are contained in the following sections.

A.1 Introduction

The patch release SCTGEN Release 2.2 consists of 14 source files, which are being delivered on tape media. The files “globals.tcl”, “procREGION.tcl”, and “winSCRIPT.tcl” will replace the files of the same name in the \$HOME/sctgui1.5/source/tcl directory. The files “CCSDS_DaySegmented.hh”, “CCSDS_Unsegmented.hh”, “DaySegmented.cpp”, and “Unsegmented.cpp” will replace the files of the same name in the \$HOME/sctgen1.5/CCSDS directory. The files “EDOS_Time.cpp”, “Packet.cpp”, and “Packet.hh” will replace the files of the same name in the \$HOME/sctgen1.5/ETS directory. The files “TigIFileDev.cpp” and “TigIFileDevice.hh” will replace the files of the same name in the \$HOME/sctgen1.5/tcore directory. The files “bsctgen.cmd” and “sgi_bsctgen.cmd” will replace the files of the same name in the \$HOME/sctgen1.5/work directory. Note that SCTGEN Patch Release 2.2 can be overlaid either over SCTGEN Release 1.5 (2.0) or SCTGEN Patch Release 2.1. See section A.4 below for instructions on how to use new SCTGEN features.

A.2 Build SCTGEN

- 1) Change to the \$HOME/sctgen1.5/work directory.
- 2) For the SGI platform, type “source sgi_btiger.cmd”, for all other platforms type “source btiger.cmd”, to build the first portion of SCTGEN. This will take about 10 to 15 minutes and will generate warning messages.
- 3) For the SGI platform, type “source sgi_bsctgen.cmd”, for all other platforms type “source bsctgen.cmd”, to build the second portion of SCTGEN. This will also generate warning messages.
- 4) Change to the \$HOME/sctgen1.5/work directory and type “cp sctgen ~/sctgui1.5/bin/*platform*.sctgen1.5” to rename the SCTGEN executable, where *platform* is sgi, hp, or sun.
- 5) Change to the \$HOME/sctgui1.5/bin directory.
- 6) Type “rm sctgen” to remove the current executable.
- 7) Type “ln -s ./*platform*.sctgen1.5 sctgen” to create a link to the executable, where *platform* is sgi, hp, or sun.

***For the HP platform:**

For steps 2 and 3, do not type the sgi prefix.

For steps 4 and 7, replace “hp” for “sgi”, or something comparable to denote host

platform.

*For the SUN platform:

For steps 2 and 3, do not type the sgi prefix.

For steps 4 and 7, replace “sun” for “sgi”, or something comparable to denote host platform.

Note: The file names may not be exactly the same depending on the platform. For example, different UNIX systems might have different header file extensions. Make sure that the correct files are replaced, otherwise, the changes will not take effect.

A.3 Supported platforms

Previous versions of SCTGEN have been built and tested using the environments listed below.

SUN platform:

- SunOS Generic Version 4.3 including C++ compiler for SUN UNIX.

HP platform:

- HP OS Version 9.0 including C++ compiler for HP UNIX.

SGI platform:

- IRIX Version 6.2 including standard CFRONT compatible C++ compiler.

A.4 Special Instructions

Since the release of SCTGEN 1.5, there have been some changes that the user will notice in the Graphical User Interface (GUI).

In order to make SCTGEN compliant with the PM-1 requirements, some changes needed to be made to the source code. The user can either have PM-1 data format, or the old (AM-1) data format. By default, the user will get the AM-1 data format. In order to get the PM-1 data format, the user needs to do the following:

From the Data Scenario Menu Panel, click on apxxxx, which will bring the user to the Packet Definition menu. From there, clicking “yes” on the Second Header will lead to the Packet 2HDR Definition menu. Click on “TcCUC” followed by “yes” for PM-1 in order to get the PM-1 data format.

Additionally, if the user wishes to use Input Units (found by clicking on apxxxx, then from the Packet Definition menu clicking “yes” for Packet Data), the user should click “yes” for PM-1 in that window as well.

The user also has the option to select January 1958 as the epoch for the Unsegmented time code. From the Data Scenario Menu Panel, click on apxxxx, which will bring the user to the Packet Definition menu. From there, clicking “yes” on the Second Header will lead to the Packet 2HDR Definition menu. Click on “TcCUC” followed by “yes” for Jan1958Epoch.

The user has a new field to enter a value for the second octet of the P-field for the Unsegmented timecode. From the Data Scenario Menu Panel, click on apxxxx, which will bring the user to the Packet Definition menu. From there, clicking “yes” on the Second Header will lead to the Packet 2HDR Definition menu. Click on “TcCUC” and enter a value for “SecondOctValue”. Since the first bit indicates that the second octet is present, valid values for this field are 0-127.

The user may turn on the Quicklook bit in the secondary header for both Unsegmented and Day Segmented formats. From the Data Scenario Menu Panel, click on apxxxx, which will bring the user to the Packet Definition menu. From there, clicking “yes” on the Second Header will lead to the Packet 2HDR Definition menu. Click on “TcCUC” or “TcDAY” followed by “yes” for Quicklook.

The user may now enter values for the Ramp, Drift, and Drift Frequency fields for both Unsegmented and Day Segmented formats. From the Data Scenario Menu Panel, click on apxxxx, which will bring the user to the Packet Definition menu. From there, clicking “yes” on the Second Header will lead to the Packet 2HDR Definition menu. Click on “TcCUC” or “TcDAY”. From there, values may be entered for the Ramp, Drift, and Drift Frequency fields.

Attachment B — Resolved Discrepancy Reports

This attachment reflects the DRs that were addressed with SCTGEN Release 2.2. The DRs are listed in the table below by DR number, status, severity, subsystem name, short description, and related NCR number. A full description of each DR follows the summary table. Complete information on all DRs is maintained in the ESDIS Discrepancy Report Tracking Tool (DRTT), which can be accessed via the Internet at address <http://iree.gsfc.nasa.gov/ddts/> (directly) or from the ESDIS Activities, Progress Reports and Schedules page at <http://spsosun.gsfc.nasa.gov/ESDIShome.html>.

Summary of Closed Discrepancy Reports

Critical(1)	Urgent(2)	Routine(3)
2	1	3

Status Definitions

N - New

A - Assigned Analysis

R - Assigned Resolution

D - Delivered

V - Verified

C - Closed

W - Withdrawn

P - Postponed

X - Duplicate

DR/IDR #	Status	Severity	Subsystem	Description	Related NCR
ETS0336	A	1	SCTGEN	Construction Record Contains 2HDR Flags in Packet Time	
ETS0328	A	1	SCTGEN	TcCUC and TcDAY timecodes do not allow for setting quicklook flag	
ETS0367	A	2	SCTGEN	Incorrect bit values for Jan58() epoch	
ETS0353	A	3	SCTGEN	Timecode format for AMSR-E	
ETS0369	A	3	SCTGEN	TcDAY and TcCUC displays should have Ramp, Drift Fields	
ETS0329	A	3	SCTGEN	TcCUC Definition Menu Panel Does not contain field to enter 2 nd octet	

*Total number DRs addressed=6

ETS0336

The packet time fields in the PDS/EDS Construction Record has the Secondary Header flags for the first byte. This only occurs with the TcCUC timecode.

Note: I think this problem is related to DR ETS0327.

ETS0328

The Secondary Header definition screens for TcCUC and TcDAY timecodes do not contain a field for setting the quicklook flag. Expect a field analogous the the quicklook field on the TcEDOS secondary header definition screen.

When I manually type the commands for setting the quicklook flag in the script for the TcCUC and TcDAY timecodes and run SCTGEN, SCTGEN hangs.

ETS0367

According to the Spacecraft to ground system ICD for packet with TcCUC timecode that has epoch starting at January 1, 1958 bits 1-3 should contain 010. However, when I set the field jan58(1) in the TcCUC Timecode bits 1-3 are 001.

ETS0353

The AMSR-E (APID 192) has the following time stamp format as stated in the EOS PM-1 S/C to EOS Ground System ICD dated 11/99:

Spacer 8 bits
p-field 8 bits
coarse time 32 bits
fine time 8 bits
Spacer 8 bits

This time stamp is different from the current TcCUC time code format.

ETS369

The TcCUC and TcDAY GUI displays do not contain Ramp, Drift, and Drift Frequency fields. These fields should be added to allow the user to simulate clock drift and Ramp capabilities, and to make the new TcCUC and TcDAY displays consistent with the TcEDOS display.

Workaround: Enter the ramp() drift() and driftFreq() fields manually in the script.

ETS329

The Packet 2HDR Definition Display for the TcCUC timecode contains a field to select a Second Octet be included in the timecode, however the display does not contain any fields to allow the user to enter a value for the 2nd octet.

Attachment C — Release History Summary Matrix

The attached Release History Summary Matrix reflects the SCTGEN Release 2.2 Delivery.

Release History Summary Matrix									
SYSTEM:	SCTGEN						PAGE	1 OF 1	
RELEASE NUMBER		1.0	1.1.0	1.2.0	1.3.0	1.4.0	1.5.0 (2.0)	2.1	2.2
DELIVERY DATE		3/3/97	5/27/97	8/25/97	2/27/98	6/26/98	9/10/99	11/30/99	2/2/00
CONFIGURATION ITEM	CI NO.								
SCTGEN GUI	5.1	1.0	1.1.0	1.2.0	1.3.0	1.4.0	1.5.0 (2.0)	2.1	2.2
SCTGEN Application Software	5.2	1.0	1.1.0	1.2.0	1.3.0	1.4.0	1.5.0 (2.0)	2.1	2.2

Attachment D- Listing of Delivery Contents

Delivery is on one 4 mm magnetic tape. The contents of the tar tape are listed below. Sections D.1 and D.2 contain the file name listings for the SCTGEN GUI and SCTGEN application software, respectively.

D.1 SCTGEN GUI Patch Release 2.2

globals.tcl
procREGION.tcl
winSCRIPT.tcl

D.2 SCTGEN Patch Release 2.2

bsctgen.cmd
sgi_bsctgen.cmd
CCSDS_DaySegmented.hh
CCSDS_Unsegmented.hh
DaySegmented.cpp
EDOS_Time.cpp
Packet.cpp
Packet.hh
TigIFileDev.cpp
TigIFileDevice.hh
Unsegmented.cpp

Attachment E — Mission Systems Configuration Management Form

This attachment contains the completed Mission Systems Configuration Management (MSCM) form.

Mission Systems Configuration Management Form

<u>1. ORIGINATOR</u> James Kelly	<u>2. ORGANIZATION</u> CSOC	<u>3. PHONE</u> (301) 805-3010	<u>4. E-MAIL ADDRESS</u> James.Kelly@csoconline.com
<u>5. ELEMENT</u> Other =====> SCTGEN		<u>6. INSTALLATION PRIORITY</u> Routine	<u>7. TRACKING NUMBER</u> (Assigned by CM Office)
<u>8. SOURCE CHANGE REQUEST(S):</u> ETS DRB approved SCTGEN release for SMO DR closure.		<u>9. APPROVALS</u> <div style="display: flex; justify-content: space-between;"> <div>Element Manager</div> <div>_____</div> <div>____/____/____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Flight Ops Director</div> <div>_____</div> <div>____/____/____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Operations Manager</div> <div>_____</div> <div>____/____/____</div> </div>	
<u>10. DELIVERED SYSTEM</u> (Check all that apply)			
	Name	Version	Media Identification
<input type="checkbox"/> Hardware	_____	_____	_____
<input checked="" type="checkbox"/> Software	SCTGEN	R2.2	4 mm tape
<input type="checkbox"/> Database	_____	_____	_____
<input checked="" type="checkbox"/> Documentation:			
Delivery Package	n/a	Via email	2/2/00
_____	_____	_____	_____
_____	_____	_____	_____
<input type="checkbox"/> Other	_____	_____	_____
<u>11. CHANGE DESCRIPTION</u> SCTGEN 2.2 addresses six DRs and provides workarounds for two others. _____ _____ _____			
<u>12. ATTACHMENT(S):</u> Check if YES <input checked="" type="checkbox"/> Description: SCTGEN 2.2 delivery package (cover letter with attachments) dated 2/2/00. _____ _____			
<u>13. CM OFFICE USE</u>			
	Location (Bldg/Room)	Slot location(s)	
Hardware	_____/____	_____	
Media	_____/____	_____	
Documentation	_____/____	_____	
Installation date	_____/____/____	CM Office Signature _____	

Form MSCM (970327)